Math vs. language, extinctions vs. climate change

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Two unrelated insights that I've recently had:

Math isn't more abstract than language, it's just exact

The reason is that mathematical notation is part of the same language that we speak, and any mathematical formula is, in fact, a written (or spoken) sentence. Example:

$$F(x) = \int_a^b f(x)\,\mathrm{d}x$$

Which is equivalent to: *The value of function F at x equals to the area of the region in the xy-plane that is bounded by the graph of f, the x-axis, and the vertical lines at a and b.* Here, math is English. But it can also be written as Chinese or Hungarian, or any other language.

I realized that what makes math special in comparison with broader language isn't its abstractness, but rather the opposite: **mathematics emerges where things are exactly defined and follow strict deductive logic**. The rest of language is a minefield of metaphors, logical loopholes, and ambiguities.

Note: Of course language can be pretty abstract, and hence math can also be very abstract. My insight concerns the relationship between the two.

Extinctions and climate change are inverse scientific problems

Climate change: We know relatively well what has been happenning with climate during the last 100 years – we have all the measurements. However, the link between the observed change and human activity has been questioned.

Species extinctions: We know what happens when habitats shrink: species go extinct and we lose biodiversity. This stems from the relationship between area and the number of unique species in that area, the *Endemics-Area Relationship (EAR)*. We also know that habitable area of the most diverse areas has been shrinking due to human activity. However, we lack direct measurements of the actual loss of species – not because they don't occur, but because an extinction is, when it happens, difficult to register.

Putting them next to each other: We know that humans have been causing extinctions, but we can't observe them. In contrast, we are not sure if humans are causing climate change, but we can directly measure it. It's inversed, in a way.